No. of Printed Pages : 3

BIEL-001

B.Tech. (BTCSVI / BTECVI / BTELVI)

Term-End Examination

June, 2019

00575

BIEL-001 : BASICS OF ELECTRONICS ENGINEERING

Time : 3 hours *Maximum Marks : 70*

Note : *Attempt any **seven** questions. All questions carry equal marks.*

1. (a) Draw the energy band diagram of metal insulator and semiconductor. *5*

(b) Explain the generation of holes and electrons in an intrinsic semiconductor. *5*

2. (a) What is Fermi level ? Where does it lie in N type and P type semiconductors ? *5*

(b) How does Avalanche breakdown differ from Zener breakdown ? *5*

3. Explain any ***two*** of the following : *2×5=10*

(a) Tunnel Diode

(b) Photodiode

(c) LED

4. Explain the construction and working of NPN transistor. *10*

5. Explain the formation of barrier potential in an open circuit PN junction diode. Also derive the expression for potential barrier. *10*

6. What is full-wave rectifier ? Derive the expression for rectifier efficiency and ripple factor. *10*

7. (a) Draw the circuit of common base transistor and explain its input output characteristics. *5*

(b) Explain the Hall effect. List the applications of Hall effect. *5*

8. (a) Explain the working of capacitor filter and inductor filter. *5*

(b) Explain voltage regulation in series regulator. List the applications of voltage regulator. *5*

9. Explain any ***two*** of the following : *2×5=10*

(a) FET

(b) MOSFET

(c) Miller Theorem

10. Compare CE, CB and CC configurations of a transistor. Draw I – V characteristics of each configuration. Also explain transit time effect. *10*